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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,631	09/19/2003	Shpak Eran	90648	5078
24628 7590 04/09/2007 WELSH & KATZ, LTD 120 S RIVERSIDE PLAZA 22ND FLOOR CHICAGO, IL 60606			EXAMINER NGUYEN, TUAN HOANG	
			ART UNIT	PAPER NUMBER
			2618	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		04/09/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

**Application No.**

10/664,631

**Applicant(s)**

ERAN ET AL.

**Examiner**

Tuan H. Nguyen

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 December 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-47 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response To Arguments***

1. Applicant's arguments, see applicant's remarks, filed on 12/26/2006, with respect to the rejection(s) of claims 1-47 under 35 U.S.C § 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Sherman (US PAT. 7,046,690) and Myles et al. (US PAT. 7,184,407 hereinafter, "Myles").

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1-5, 10, 14, 16- 17, 19, 23, 33-35, and 40 are rejected under 35 U.S.C. 102(e) as being anticipated by Sherman (US PAT. 7,046,690).

Consider claim 1, Sherman teaches a method for mobile communication, comprising: arranging a plurality of access points (160-1 to 160-4) in a wireless local area network (WLAN) to communicate over the air with a mobile station (i.e., 160-1) using a common basic service set identification (BSSID) (i.e., stations 160-1 and 160-2 provided in a first basic service set BSS1 having the same basic service, and stations 160-3 and 160-4 provided in a second basic service set BSS2 having the same basic service) for all the access points (fig. 1 col. 3 lines 41-60); receiving at one or more of the access points an uplink signal transmitted over the WLAN by the mobile station using the common BSSID (fig. 1 col. 3 lines 41-60 and col. 4 lines 20-34); sending and receiving messages over a communication medium linking the access points in order to select one of the access points to respond to the uplink signal (col. 4 lines 20-34); and transmitting a response from the selected one of the access points to the mobile station (col. 4 lines 20-34).

Consider claim 2, Sherman further teaches the access points are configured to communicate with the mobile station over a common frequency channel shared by all the access points (col. 3 lines 46-50).

Consider claims 3, Sherman further teaches the access points have respective service areas, and wherein arranging the plurality of the access points comprises arranging the access points so that the service areas substantially overlap (col. 4 lines 3-19).

Consider claims 4, Sherman further teaches arranging the plurality of the access points comprises arranging the access points to communicate with the mobile station substantially in accordance with IEEE Standard 802.11 (col. 14 lines 10-22).

Consider claim 5, Sherman further teaches arranging the plurality of the access points comprises assigning a respective medium access control (MAC) address to each of the access points, so that each of the access points ignores uplink data messages that are not addressed to the respective MAC address (col. 3 lines 54-59).

Consider claim 14, Melpignano further teaches sending and receiving the messages comprises sending the messages from the access points to a manager node, which processes the messages so as to select the one of the access points to respond to the uplink signal, and sending instructions from the manager node to the selected one of the access points to transmit the response (col. 6 line 64 through col. 7 line 33).

***Claim Rejections - 35 USC § 103***

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4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sherman in view of Honkasalo et al. (U.S. PUB. 2003/0210674 hereinafter, "Honkasalo").

Consider claim 6, Sherman teaches a method for mobile communication, comprising: arranging a plurality of access points in a wireless local area network (WLAN) to communicate over the air with a mobile station using a common basic service set identification (BSSID) for all the access points.

Sherman does not explicitly show that arranging the plurality of the access points comprises configuring the access points to emulate mobile station communications, so that each of the access points acknowledges the uplink data messages that are addressed from the mobile station to the respective MAC address.

In the same field of endeavor, Honkasalo teaches arranging the plurality of the access points comprises configuring the access points to emulate mobile station communications, so that each of the access points acknowledges the uplink data messages that are addressed from the mobile station to the respective MAC address (page 3 [0036]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use, arranging the plurality of the access points comprises configuring the access points to emulate mobile station communications, so that each of the access points acknowledges the uplink data messages that are addressed from the mobile station to the respective MAC address, as taught by Honkasalo, in order to provide the base station of a cellular communication network the ability to preemptively control priority and duration of mobile station access by employing a scheduling method which considers one or more parameters including priority access service, quality of service, and a maximum number of bytes per transmission.

Consider claim 7, Honkasalo further teaches sending and receiving the messages comprises reconfiguring the selected one of the access points temporarily to stop emulating the mobile station communications, so as to transmit an acknowledgment to a management frame transmitted by the mobile station (page 2 [0017]).

Consider claim 8, Honkasalo further teaches sending and receiving the messages comprises changing the respective MAC address of the selected one of the access points temporarily, so as to cause the selected one of the access points to transmit an acknowledgment to a management frame transmitted by the mobile station (page 3 [0038]).

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Consider claim 9, Honkasalo further teaches transmitting the response comprises instructing the mobile station to transmit all the uplink data messages to the respective MAC address of the selected one of the access points (page 6 [0057] and [0058]).

Consider claim 10, Sherman further teaches instructing the mobile station comprises sending an Address Resolution Protocol (ARP) response to the mobile station (col. 4 lines 10-14).

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sherman in view of Honkasalo, and further in view of Chari et al. (U.S PAT. 7,016,328 hereinafter, "Chari").

Consider claim 11, Sherman and Honkasalo in combination, fails to teaches subsequently to transmitting the response from the selected one of the access points, and responsively to a further uplink signal received from the mobile station, selecting a further one of the access points to communicate with the mobile station, and sending a spoofed ARP response to the mobile station instructing the mobile station to transmit all further uplink data messages to the respective MAC address of the further one of the access points.

However, Chari teaches subsequently to transmitting the response from the selected one of the access points, and responsively to a further uplink signal received



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from the mobile station, selecting a further one of the access points to communicate with the mobile station, and sending a spoofed ARP response to the mobile station instructing the mobile station to transmit all further uplink data messages to the respective MAC address of the further one of the access points (col. 14 lines 55-62).

Therefore, it is obvious to one of ordinary skill in the art at the time the invention was made to incorporate the disclosing of Chari into view of Sherman and Honkasalo, in order to provide the wireless mesh network that allows wireless handoffs of a client between access nodes of the mesh network and does not require the client to include special hardware or software.

7. Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sherman in view of Melpignano et al. (U.S. PUB. 2003/0003912 hereinafter, "Melpignano").

Consider claim 12, Sherman teaches a method for mobile communication, comprising: arranging a plurality of access points in a wireless local area network (WLAN) to communicate over the air with a mobile station using a common basic service set identification (BSSID) for all the access points.

Sherman does not explicitly show that receiving the uplink signal comprises measuring a strength of the uplink signal at each of the one or more of the access points, and wherein sending and receiving the messages comprises indicating in the messages the measured strength of the uplink signal, and selecting the one of the

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access points to respond to the uplink signal responsively to the strength indicated in the messages.

In the same field of endeavor, Melpignano teaches receiving the uplink signal comprises measuring a strength of the uplink signal at each of the one or more of the access points, and wherein sending and receiving the messages comprises indicating in the messages the measured strength of the uplink signal, and selecting the one of the access points to respond to the uplink signal responsively to the strength indicated in the messages (page 1 [0009]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use, receiving the uplink signal comprises measuring a strength of the uplink signal at each of the one or more of the access points, and wherein sending and receiving the messages comprises indicating in the messages the measured strength of the uplink signal, and selecting the one of the access points to respond to the uplink signal responsively to the strength indicated in the messages, as taught by Melpignano, in order to provide a technique for deriving and distributing information about network topology in such an arrangement and provides communication units for use in the arrangement.

Consider claim 13, Melpignano further teaches measuring the strength comprises measuring the strength repeatedly in response to subsequent uplink signals transmitted by the mobile station, and wherein selecting the one of the access points comprises selecting a different one of the access points to respond to the subsequent

uplink signals, responsively to a change in the measured strength (page 7 [0097]).

8. Claims 15-17 and 32-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sherman in view of Myles et al. (U.S PAT. 7,184,407 hereinafter, "Myles").

Consider claim 15, Sherman teaches a method for mobile communication, comprising: arranging a plurality of access points in a wireless local area network (WLAN) to communicate over the air on a common frequency channel with a mobile station (fig. 1 col. 3 lines 41-60); receiving at two or more of the access points an uplink signal transmitted over the WLAN by the mobile station on the common frequency channel (fig. 1 col. 3 lines 41-60 and col. 4 lines 20-34); and transmitting a response from the selected one of the access points to the mobile station (col. 4 line 20-34).

Sherman does not explicitly show that conveying messages responsively to the uplink signal from the one or more of the access points over a communication medium linking the access points to a manager node; processing the messages at the manager node so as to select one of the access points that received the uplink signal to respond to the uplink signal.

In the same field of endeavor, Myles teaches conveying messages responsively to the uplink signal from the one or more of the access points (503, 505) over a communication medium linking the access points to a manager node (509) (fig. 5 col. 6 line 64 through col. 7 line 33); processing the messages at the manager node so as to

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select one of the access points that received the uplink signal to respond to the uplink signal (fig. 5 col. 7 lines 19-33).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use, conveying messages responsively to the uplink signal from the one or more of the access points over a communication medium linking the access points to a manager node; processing the messages at the manager node so as to select one of the access points that received the uplink signal to respond to the uplink signal, as taught by Myles, in order to provide automatically detecting and reporting the presence of the hidden nodes in a network conforming to the IEEE 802.11 standard.

Consider claim 32, Sherman teaches apparatus for mobile communication, comprising: a plurality of access points, which are arranged in a wireless local area network (WLAN) to communicate over the air on a common frequency channel with a mobile station using a common basic service set identification (BSSID) for all the access points (fig. 1 col. 3 lines 41-60); and which are adapted, upon receiving at one or more of the access points an uplink signal transmitted over the WLAN by the mobile station on the common frequency channel, to convey messages responsively to the uplink signal from the one or more of the access points over a communication medium linking the access points (fig. 1 col. 3 lines 41-60 and col. 4 lines 20-34).

Sherman does not explicitly show that a manager node, linked to the communication medium, which is adapted to process the messages so as to select one

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of the access points to respond to the uplink signal, and to instruct the selected one of the access points to transmit a response to the mobile station.

In the same field of endeavor, Myles teaches a manager node (509), linked to the communication medium, which is adapted to process the messages so as to select one of the access points to respond to the uplink signal, and to instruct the selected one of the access points to transmit a response to the mobile station (fig. 5 col. 6 line 64 through col. 7 line 33).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use, a manager node, linked to the communication medium, which is adapted to process the messages so as to select one of the access points to respond to the uplink signal, and to instruct the selected one of the access points to transmit a response to the mobile station, as taught by Myles, in order to provide a technique for deriving and distributing information about network topology in such an arrangement and provides communication units for use in the arrangement.

Consider claims 16, and 33, Sherman further teaches the access points have respective service areas, and wherein arranging the plurality of the access points comprises arranging the access points so that the service areas substantially overlap (col. 4 lines 3-19).

Consider claims 17, and 34, Sherman further teaches arranging the plurality of the access points comprises arranging the access points to communicate with the

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mobile station substantially in accordance with IEEE Standard 802.11 (col. 14 lines 10-22).

Consider claim 35, Sherman further teaches arranging the plurality of the access points comprises assigning a respective medium access control (MAC) address to each of the access points, so that each of the access points ignores uplink data messages that are not addressed to the respective MAC address (col. 3 lines 54-59).

9. Claims 18-23 and 36-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sherman in view of Myles and further in view of Honkasalo.

Consider claims 18 and 36, Sherman and Myles, in combination, fails to teaches arranging the plurality of the access points comprises assigning a respective medium access control (MAC) address to each of the access points, so that each of the access points acknowledges uplink data messages addressed from the mobile station to the respective MAC address.

However, Honkasalo teaches arranging the plurality of the access points comprises assigning a respective medium access control (MAC) address to each of the access points, so that each of the access points acknowledges uplink data messages addressed from the mobile station to the respective MAC address (page 3 [0036]).

Therefore, it is obvious to one of ordinary skill in the art at the time the invention was made to incorporate the disclosing of Honkasalo into view of Sherman and Myles,

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in order to provide the base station of a cellular communication network the ability to preemptively control priority and duration of mobile station access by employing a scheduling method which considers one or more parameters including priority access service, quality of service, and a maximum number of bytes per transmission.

Consider claim 19, Sherman further teaches arranging the plurality of the access points comprises assigning a respective medium access control (MAC) address to each of the access points, so that each of the access points ignores uplink data messages that are not addressed to the respective MAC address (page 3 [0037]).

Consider claims 20 and 37, Honkasalo further teaches sending and receiving the messages comprises reconfiguring the selected one of the access points temporarily to stop emulating the mobile station communications, so as to transmit an acknowledgment to a management frame transmitted by the mobile station (page 2 [0017]).

Consider claims 21 and 38, Honkasalo further teaches sending and receiving the messages comprises changing the respective MAC address of the selected one of the access points temporarily, so as to cause the selected one of the access points to transmit an acknowledgment to a management frame transmitted by the mobile station (page 3 [0038]).

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Consider claims 22 and 39, Honkasalo further teaches transmitting the response comprises instructing the mobile station to transmit all the uplink data messages to the respective MAC address of the selected one of the access points (page 6 [0057] and [0058]).

Consider claims 23 and 40, Sherman further teaches instructing the mobile station comprises sending an Address Resolution Protocol (ARP) response to the mobile station (col. 4 lines 10-14).

10. Claims 24 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sherman in view of Myles and Honkasalo, and further in view of Chari.

Consider claims 24 and 41, Sherman, Myles and Honkasalo in combination, fails to teaches subsequently to transmitting the response from the selected one of the access points, and responsively to a further uplink signal received from the mobile station, selecting a further one of the access points to communicate with the mobile station, and sending a spoofed ARP response to the mobile station instructing the mobile station to transmit all further uplink data messages to the respective MAC address of the further one of the access points.

However, Chari teaches subsequently to transmitting the response from the selected one of the access points, and responsively to a further uplink signal received from the mobile station, selecting a further one of the access points to communicate



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with the mobile station, and sending a spoofed ARP response to the mobile station instructing the mobile station to transmit all further uplink data messages to the respective MAC address of the further one of the access points (col. 14 lines 55-62).

Therefore, it is obvious to one of ordinary skill in the art at the time the invention was made to incorporate the disclosing of Chari into view of Sherman, Myles and Honkasalo, in order to provide the wireless mesh network that allows wireless handoffs of a client between access nodes of the mesh network and does not require the client to include special hardware or software.

11. Claims 25-28 and 42-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sherman in view of Myles and further in view of Melpignano.

Consider claims 25 and 42, Sherman and Myles, in combination, fails to teaches receiving the uplink signal comprises measuring a strength of the uplink signal at each of the one or more of the access points, and wherein sending and receiving the messages comprises indicating in the messages the measured strength of the uplink signal, and selecting the one of the access points to respond to the uplink signal responsively to the strength indicated in the messages.

However, Melpignano teaches receiving the uplink signal comprises measuring a strength of the uplink signal at each of the one or more of the access points, and wherein sending and receiving the messages comprises indicating in the messages the measured strength of the uplink signal, and selecting the one of the access points to

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respond to the uplink signal responsively to the strength indicated in the messages (page 1 [0009]).

Therefore, it is obvious to one of ordinary skill in the art at the time the invention was made to incorporate the disclosing of Melpignano into view of Sherman and Myles, in order to provide a technique for deriving and distributing information about network topology in such an arrangement and provides communication units for use in the arrangement.

Consider claims 26, and 43, Melpignano further teaches measuring the strength comprises measuring the strength repeatedly in response to subsequent uplink signals transmitted by the mobile station, and wherein selecting the one of the access points comprises selecting a different one of the access points to respond to the subsequent uplink signals, responsively to a change in the measured strength (page 7 [0097]).

Consider claim 27, Melpignano further teaches sending and receiving the messages comprises sending the messages from arranging the plurality of the access points comprises assigning all the access points to the same basic service set (BSS) (page 8 [0109]).

Consider claims 28 and 44, Melpignano further teaches sending and receiving the messages comprises sending the messages from the manager node comprises a plurality of management processors (pages 6-7 [0094] through [0098], page 8 [0111])

through [0115]).

12. Claims 29-31 and 45-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sherman in view of Myles and Melpignano and further in view of Honkasalo.

Consider claims 29 and 45, Sherman, Myles and Melpignano, in combination, fails to teaches the plurality of management processors comprises a control processor and a packet processor, and wherein processing the messages comprises selecting the one of the access points to respond to the uplink signal using the control processor, and further comprises processing uplink data packets received by the selected one of the access points using the packet processor.

However, Honkasalo teaches the plurality of management processors comprises a control processor and a packet processor, and wherein processing the messages comprises selecting the one of the access points to respond to the uplink signal using the control processor, and further comprises processing uplink data packets received by the selected one of the access points using the packet processor (page 3 [0033]).

Therefore, it is obvious to one of ordinary skill in the art at the time the invention was made to incorporate the disclosing of Honkasalo into view of Sherman, Myles and Melpignano, in order to provide the base station of a cellular communication network the ability to preemptively control priority and duration of mobile station access by employing a scheduling method which considers one or more parameters including

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priority access service, quality of service, and a maximum number of bytes per transmission.

Consider claims 30, and 46, Honkasalo further teaches processing the uplink data packets comprises decrypting the uplink data packets and encrypting downlink data packets at the packet processor, for transmission by the selected one of the access points (page 5 [0049]).

Consider claims 31, and 47, Honkasalo further teaches processing the messages comprises distributing the messages for processing among the plurality of the management processors (page 3 [0031]).

### ***Conclusion***

13. Any response to this action should be mailed to:

Mail Stop\_\_\_\_\_ (Explanation, e.g., Amendment or After-final, etc.)

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Facsimile responses should be faxed to:

(571) 273-8300

Hand-delivered responses should be brought to:

Customer Service Window  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22313

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan H. Nguyen whose telephone number is (571)272-8329. The examiner can normally be reached on 8:00Am - 5:00Pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Maung Nay A. can be reached on (571)272-7882882. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information Consider the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tuan Nguyen  
Examiner  
Art Unit 2618  
T.N.

  
**NAY MAUNG**  
**SUPERVISORY PATENT EXAMINER**